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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/544,895

08/08/2005

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124428

6457

25944 7590 06/25/2008

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EXAMINER

GEORGE, PATRICIA ANN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

06/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/544,895	Applicant(s) HATTORI ET AL.	
	Examiner Patricia A. George	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant amended claim 1 to include "such that both central axes of ion beams on both the surfaces are substantially vertical to the surfaces of the object to be processed."

Turning to the applicants' own specification for clarification, the examiner found in paragraph 0116 that the applicant explicitly expressed that the term "incident angle" is used to mean an incident angle with respect to the surface of the object to be processed and an angle formed by the surface of the object to be processed and the central axis of ion beams. The examiner found no reference in the specification to 'both central axes of ion beams on both surfaces substantially vertical to the surfaces of the object to be processed while simultaneously ion beam etching both surfaces', as currently claimed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner fails to understand "such that both central axes of ion beams on both the surfaces are substantially vertical to the surfaces of the object to be processed" when the applicant clearly states that the term "incident angle" is used to mean an incident angle with respect to the surface of the object to be processed and an angle formed by the surface of the object to be processed and the central axis of ion beams. How can the central axes of ion beams on the surfaces be substantially vertical to the surfaces of the object when the incident angle is not claimed.

The term "substantially vertical" in claim 1 is a relative term which renders the claim indefinite. The term "substantially vertical" is not defined by the claim, and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the sake of examination, the examiner will interpret the term "substantially vertical" to mean - -not precisely perpendicular to the surface- - .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 5, 7, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belser in view of Ichihara, Swann, George, and Kawanishi.

Belser teaches double sided magnetic recording medium disks are known to be manufactured (i.e. the existence of manufacturing methods) for use with a set of flying heads. (See column 5. lines 5-10). Belser also teaches the pits and grooves in the double sided magnetic recording medium disks can be defined by applying a photo sensitive mask layer on a substrate such as glass or aluminum, photolithographically defining (i.e. a resist layer) the desired pit and groove regions and the photo sensitive layer, and etching the substrate by means such as reactive ion etching or ion milling followed by removal of the photo sensitive layer.

Kawanishi teaches photolithographically defining methods for magnetic recording medium, include continuous recording layers formed in surfaces of a substrate by a step of processing a resist layer into a predetermined pattern, a step of transferring the predetermined pattern in the resist to a mask layer, and a step of transferring the predetermined pattern in the mask to the continuous recording layer.

Belser does not teach continuous recording layers are formed which divide recording layers, each formed by a number of divided recording elements.

Ichihara teaches continuous recording layers are formed which divide recording layers, each formed by a number of divided recording elements. See summary.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the method of manufacturing double sided magnetic recording medium disks, as Belser, to include that continuous recording layers are formed which divide recording layers, each formed by a number of divided recording elements, as in the applicants' specifically claimed limitation, because Ichihara teaches that such formations are known and are effective for manufacturing double sided magnetic recording medium disks, and one of skill would recognize that there is a cost savings to manufacturing when limiting or reducing the number of process steps. Further, in absence of unexpected results, one of ordinary skill would be motivated to utilize such patterning methods for manufacturing double sided magnetic recording medium disks continuously, because, it has been held that the elimination of a step supports a prima facie obviousness determination. See MPEP 2144.04.

The modified invention of Kawanishi does not teach to ion beam etch both sides of a substrate simultaneously.

Swann et al. (5,472,566) teaches that it is known to ion beam etch both sides of a substrate simultaneously, and that both central axes of the ion beams can be adjusted (column 6, lines 45 – 57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the invention of pattern transferring double sided

magnetic recording medium disks, as Belser, to include a step of ion beam etching both sides of a substrate, as in the applicants' specifically claimed limitation, because Swann et al. (5,472,566) teaches that such method steps are known and are effective for pattern transferring, and further, one of skill would recognize that there is a cost savings to manufacturing when limiting or reducing the number of process steps. Further, in the absence of unexpected results, one of ordinary skill would be motivated to utilize such patterning methods for manufacturing double sided magnetic recording medium disks simultaneously, because, it has been held that the elimination of a step supports a prima facie obviousness determination. See MPEP 2144.04.

The modified teaching of Belser, in Swann, illustrates, in Figure 5., that the ion beams are substantially vertical to the surfaces of the objects being process. (i.e. not exactly perpendicular to the surface). See Summary.

Belser does not teach one of the process steps (i.e. resist pattern as in claim 3) is performed to simultaneously process both surfaces of the object (as in claim 1 and 7).

George illustrates process steps for lithography include the use of a resist layer which is simultaneously formed on both surfaces of an object into a predetermined pattern (as in claims 1 and 3 - see figures 7-9) to super-imprint nanostructures.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the method of pattern transfer for manufacturing double sided magnetic recording medium disks, as Belser, to include any known lithographic

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patterning steps, including processing a resist layer into a predetermined pattern performed simultaneously on both surfaces, as in the applicants' specifically claimed limitation, because simultaneous methods for manufacturing reduce process time, which is cost saving.

The modified teaching of Belser is silent with regard to the removal of the resist before etching the continuous recording layer, as in claims 5 and 17.

Kawanishi teaches the removal of the resist before etching the continuous recording layer, as in claims 5 and 17. See abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the method of manufacturing double sided magnetic recording medium disks, as Belser, to include a step of the removing the resist before etching the continuous recording layer, as in the applicants' limitations of claims 5 and 17, because Kawanishi teaches that such method steps are known and effective for manufacturing double sided magnetic recording medium disks, and it is known to provides the benefit of channeling the etching for a desired pattern, and therefore one in the art would have a reasonable expectation of success.

Further, all of the claimed elements were known in the prior art and one skilled in the art would have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The

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prior art included each element claimed although not necessarily in a single reference, and one of ordinary skill in the art would have combined the elements as claimed by known patterning methods, and in combination, each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable because it has been held that teachings of multiple patents are able to fit together like a puzzle. More further, a predictable use of prior art elements according to their established functions to achieve a predictable result is prima facie obvious. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) and MPEP 2142.

Claim Rejections - 35 USC § 103

Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belser, Ichihara, Swann, and George, and Kawanishi, as applied to claims 1, 3, 5, 7, and 17 above, in view of Berg et al. (3,913,520).

The modified invention of Kawanishi does not teach simultaneous deposition to both sides of a substrate.

Berg teaches the step of simultaneous deposition to both sides of a substrate.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to modify the invention of pattern transferring double sided magnetic recording medium disks, as Belser, to include a step of simultaneous deposition to both sides of a substrate, as in the applicants' specifically claimed limitation, because Berg teaches that such method steps are known and effective, and

further, one of skill would recognize that there is a cost savings to manufacturing when limiting or reducing the number of process steps. Further, in absence of unexpected results, one of ordinary skill would be motivated to use such patterning methods for manufacturing double sided magnetic recording medium disks simultaneously, because, it has been held that the elimination of a step supports a prima facie obviousness determination. See MPEP 2144.04.

Claim Rejections - 35 USC § 103

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Belser, Ichihara, Swann, and George, and Kawanishi, as applied to claims 1, 3, 5, 7, and 17 above, in view of Berg et al. (3,913,520).

The modified invention of Belser teaches to ion beam etch both sides of a substrate. See Swann's Summary.

The modified invention of Belser does not teach simultaneous deposition to both sides of a substrate.

Berg teaches the step of simultaneous deposition to both sides of a substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the invention of pattern transferring, as Belser, to include a step of simultaneous deposition to both sides of a substrate, as in the applicants' specifically claimed limitation, because Berg teaches that such method steps are known and effective, and further, one of skill would recognize there is a cost savings to manufacturing when limiting or reducing the number of process steps. Further, in the

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absence of unexpected results, one of ordinary skill would be motivated to use such patterning methods for manufacturing double sided magnetic recording medium disks simultaneously, because, it has been held that the elimination of a step supports a prima facie obviousness determination. See MPEP 2144.04.

Further, all of the claimed elements were known in the prior art and one skilled in the art would have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The prior art included each element claimed, although not necessarily in a single reference, and one of ordinary skill in the art would have combined the elements as claimed by known patterning methods, and in combination, each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. Further, a predictable use of prior art elements according to their established functions to achieve a predictable result is prima facie obvious. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

Response to Arguments

The applicants argue, on pages 6-8, that the prior office action, of 11/15/2007, fails to address the newly amended limitations. The examiner agrees, and offers a new

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grounds of rejection, above. As no other limitations are argued, they are deemed proper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571) 272-5955. The examiner can normally be reached on Tue. - Fri. between 9:00 am and 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patricia A George
Examiner
Art Unit 1794

/Patricia A George/
Examiner, Art Unit 1794

/KEITH D. HENDRICKS/
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